

PRESENTATION FRETWORK DESIGN WITH THIS NUMBER.

Hobbies

• A Weekly Journal •

For Amateurs of Both Sexes.

No. 7. VOL. I.

NOVEMBER 30, 1895.

ONE PENNY.

Stamps and Stamp Collecting.

Fretworking and Inlaying.

Venetian Ribbon or Bent Iron Work.

Photographic Notes of the Week.

Hobbies that Pay.

Playgrounds of Electrical Science,—

The Induction Coil—How to Make and Use it.

Notes on Cycling and Sport.

Bazaars, and the Arrangement of Side Shows.

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THE INDUCTION COIL. HOW TO MAKE AND USE IT.

CHAP. V.



DESCRIPTION of the Induction Coil would be very incomplete without some mention of the Rhumkorff Commutator, which, although perhaps not absolutely essential, will be found very handy for starting, stopping, or

reversing the Battery or primary Current. This little instrument is clearly shewn in Fig. 15, though it is somewhat difficult to describe in a simple manner. As will be noticed, there are four terminals, two of which are situated upon the feet of a couple of upright springs. Between these two springs is an Ebonite Cylinder, supported by metal axes; one axis is prolonged and terminates in a milled head by which the Cylinder is turned. There are literally two axes which enter one at each end of the Cylinder, but they do not meet inside, and are therefore insulated from each other.

Upon the outside of the Cylinder, and on opposite faces of it, are two copper plates running along its whole length. Each plate is secured to the Cylinder by two screws, one of which passes through to one axis. The other is short and is only embedded in the Ebonite. One plate is therefore in Electrical connection with one axis by means of its own particular screw, while the other plate is connected to the opposite axis by that one's own particular screw. In the figure the Cylinder is so placed that the two plates are vertical, one at the top and the other at the bottom; the springs are therefore shewn quite clear, but on turning the Cylinder and bringing the plates into a horizontal position the springs will be brought into contact with the plates. The two terminals in the distant corners of the board are connected with the metal supports or



FIG. 15.

bearings of the Cylinder axes. Now, if the Battery is connected to the two spring terminals, and the ends of the primary Coil to the other two terminals, the Current may be turned on, off, or reversed in any direction at pleasure. With the Cylinder in the position illustrated the Current would be turned off, or stopped. Turn it through the quarter of a circle (90°), to bring the plates horizontal, and the Current will flow round the circuit, the plates being in contact with the springs; turn it again in the same direction until the plates are once more vertical, and the circuit is broken; turn it still further round, bringing the plates into a horizontal position for the second time, and the Current will flow in a reverse direction to which it did at first. A little thought and consideration will make the matter clear.

A couple of Glass or Ebonite Pillars, about six inches in height and half-an-inch in diameter, will be required to carry the discharging rods, or to connect wires. The bottom of each pillar is fitted into a brass socket with which to screw it down to the baseboard. At the top is a brass terminal serving the double purpose of holding one end of the secondary Coil and one discharging rod, or in the place of the rod another wire may be inserted. The two discharging rods are

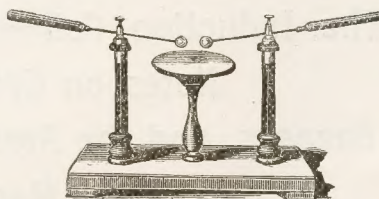


FIG. 16.

provided with insulating handles to protect the operator from shock. When a separate instrument is desirable, Henley's Discharger may be used. It consists (see Fig. 16) of two Ebonite

pillars fitted into brass sockets at the base, and with terminals at the top for carrying discharging rods, as well as for holding the wires leading to the Induction Coil. There is also a little table on which to place any substance it may be desired to act upon, such as gunpowder, etc. A Hand Discharger is also shewn in Fig. 17, which is too simple to require any description.

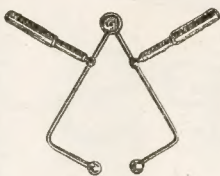


Fig. 17.

A Condenser of large capacity will also be necessary, but this can easily be made by the amateur, as follows:—From White Demy paper cut out one hundred sheets, each seven inches long and six inches wide. Examine each sheet separately by holding it up before the light, and make sure that it is quite free from holes. Reject any showing even the minutest hole, and replace by sound ones. Dip each sheet into shellac varnish, and hang it up to dry: do this twice. Next cut out forty-five sheets of tinfoil, five inches long and four inches wide. Two thin planed boards will also have to be procured of the same size as the paper,—that is, seven by six inches. Two corners will have to be cut off each sheet of paper, and one corner off each sheet of foil, see Fig. 18. Two corners will have to be cut off one (only one) of the boards similar to the paper, and both boards varnished well. Now take the uncut board and lay upon five sheets of paper, one on the top of the other, forming five successive layers, with all the cut corners coinciding with each other. Upon the paper place one sheet of tinfoil, as shewn in Fig. 18, with one uncut



Fig. 18.

corner projecting over the right hand cut paper corner. Next lay two sheets of paper on the tinfoil, and then another sheet of tinfoil, but this second foil must have its uncut corner projecting over the left hand cut corners of the paper. The cut corners of all the papers must coincide, or come towards the same end of the Condenser, while one uncut corner of each sheet of foil must project (similar to the first foil sheet), alternately on the right and left hand sides. Build up the Condenser in this way, laying two papers between each foil, finally placing on the five remaining papers in succession, and then the other board. The whole must now be strongly bound together with cord, giving the projecting foil corners a pretty wide berth.

Next in order comes the baseboard, or pedestal as it is sometimes termed. Hitherto, the term baseboard has been employed as being more comprehensive, but it is really something more than a board, or stand, and in fact forms a containing box for the Condenser. The word base will therefore be a good name to call it by in future. For a Coil six inches in length, the

base should be about twelve inches long by eight inches broad, and two inches deep. The bottom is made moveable, and may be kept in place by screws, or other devices. Before making, or having it made, it will be a good plan to fix all the pieces of apparatus, except the Commutator and Condenser, upon a common deal board just for the time being. If the Coil has square flanges, simply screw it down in the middle of the board from underneath. For this purpose, one small screw in each flange should be ample. Next adjust the contact breaker. The iron clapper on the spring must face the front end of the iron core, and be held only a very little distance from it. The exact distance can only be ascertained by actual trial. With the spring quite vertical, the piece may be screwed down, with a quarter of an inch between the clapper and core. The other part of the contact breaker must next be screwed down with the tip of the contact screw just touching the spring. By a turn or two of the screw, the spring may be deflected towards the Coil if necessary, thus lessening the distance between the core and the iron clapper.

(To be continued.)

Our Advertising Coupon Scheme.

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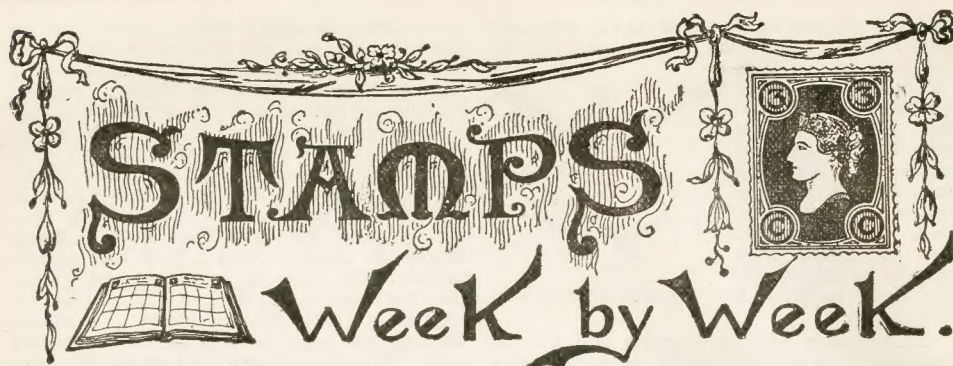
Every copy of our Weekly Presentation Supplement now contains a Coupon which, by special arrangement with our Advertisers, will, under the conditions to be detailed, be accepted by the Firms whose names are printed on the back of the Supplement as an equivalent of Threepence in Cash.

Each Coupon is numbered and dated, and will remain good for three months. The Coupons will be accepted in payment not only for any articles specifically mentioned in the advertisements in our pages, but for any goods sold by the Firms who have agreed to take them.

The one consideration of any importance is that not more than five per cent. of the amount of any one order shall be paid in Coupons. For example, if it be desired to purchase goods to the value of 5/-, it would be sufficient to send a postal order for 4/9 and one Coupon; if the bill came to 10/-, two Coupons and a postal order for 9/6 would be required; and if the amount were 20/- a postal order for 19/- and four Coupons would need to be sent. Should less than five shillings worth of goods be required, the sender of a Coupon will be entitled to a discount of one halfpenny for every shilling. Coupons cannot be accepted for sums of less than one shilling.

It should be clearly understood that when, for instance, goods to the value of 20/- are ordered, it is not necessary for the purchaser to buy four numbers of the current week's issue of *Hobbies*. All back Coupons should be preserved. Each is available for three months, and may be used at any time during that period.

Further details of the scheme, with a list of Firms who have agreed to accept Coupons, will be found on the back of the Weekly Presentation Supplement. A Table shewing the system of discount from One Shilling to a pound is also given.



STAMPS

Week by Week.

A Philatelic Causerie by PERCY C. BISHOP,

Joint Editor of the "STAMP COLLECTORS' FORTNIGHTLY;" *Ex-Editor* of "THE PHILATELIC JOURNAL" and "PHILATELIC REVIEW OF REVIEWS;" *General Secretary* of the LONDON PHILATELIC CLUB.

FORMOSA furnishes the latest instance of speculation in stamps. The redoubtable Formosan rebels calling themselves "Black Flags" attempted recently to establish a Formosan Republic, and, as an outward and visible sign of their independence, prepared a postage stamp of a light blue colour bearing as design a tiger of weird shape and ferocious mien. Thousands were printed and (we are told) were readily bought up by speculators in the Treaty Ports of China. So far as I know no copies of this precious stamp have yet arrived in this country. I am anxious to see it, if only to compare it with the first efforts of Formosa, which appeared, I think, about eight or ten years ago. Philatelists whose memories go back so far will recall the fact that the Formosans, finding that the stamps they had been in such a hurry to issue, were unavailable for postage, used them up as Customs House tickets and luggage labels.

I am anxious to provide the readers of *Hobbies* with a complete illustrated list of the various bogus stamps which have from time to time been issued for the purpose of swindling the unwary. There is one particularly notorious "bogie" which is missing from the collection I have formed of these fraudulent issues. I refer to the "stamps" of "Sedang." If any reader has one or all of these, I should much like to borrow them for the purposes of illustration. Specimens of the fraudulent Bolivian newspaper stamps of 1892, the unauthorised Nyassalands of last year, and the stamps of Trinidad (the so-called Principality; not British Trinidad) would also be acceptable for the same purpose.

It is most important that all Philatelists, and especially beginners, should be warned against such rubbish; and for this reason I feel that I can count upon the readers' co-operation.

It comes as a surprise to learn that the late M. Stambouloff, the "Bismarck of Bulgaria,"

was an enthusiastic Philatelist. Many princes and peers have at various times taken to stamp collecting, but I think this is the first instance on record of a great statesman having done so. Stambouloff's collection must have been a fairly good one, for I have just heard on good authority that it sold to a Budapest collector for nearly £150. In this connection I may mention that I am now making arrangements to include a series of portraits of eminent Philatelists in these articles.

PLATE NUMBERS OF ENGLISH STAMPS.

Now for the promised list of the plate numbers to be found on English stamps of all denominations.

To commence with the halfpenny value, of the small oblong issue, the plate numbers to be found are 1, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 19, and 20. Plates 2, 7, 16, 17, and 18 were prepared but never used. Plate 9 is the rarity of the group, being catalogued by Hilckes at 7s. 6d. used; £2 unused. Plate 1 is also somewhat scarce.

It must be added, for the benefit of the novice, that the number on the halfpenny value is to be found at the side of the stamp, as in the penny value.

Coming to the penny stamp (issue of 1864) the complete list of numbers is as follows:—70 (?), 71, 72, 73, 74, 76, 78 to 125 inclusive, 127, and 129 to 225 inclusive.

As to the first-mentioned number, 70, a doubt still exists as to whether this was ever used, several persons having claimed at various times to have found copies of this plate number. In most of these cases the stamp has been proved to be plate 170 (the number illustrated in annexed engraving), the numeral "1" being so faint as to be imperceptible to the naked eye. In the same way plate 120 is often mistaken for the non-existent plate 126. Fancy goes such a long way when the wish is father to the thought!



The third annual general meeting has just been held of that active Philatelic body, the City of London Philatelic Club, the membership of which is steady at 106. The plans formed by the Committee promise a phenomenally active season. The new headquarters are at Kennan's Hotel, Crown Court, Cheapside, where meetings are to be held every alternate Monday. Several go-ahead members have promised to read papers on interesting Philatelic topics, and a conversation to wind up the season is on the tapis. I should recommend every stamp collector resident in London to get full particulars of this useful Philatelic rendezvous from the Correspondence Secretary, Mr. C. Forbes, 42, Strahan Road, Bow, London, E. The personnel of the Club's executive is alone a sufficient guarantee of its usefulness. Mr. Hastings Wright, the well-known English specialist, has been invited to take the Presidential chair; the Vice-President is Mr. Harry Hilckes, and the other officers and committee-members include, in addition to my humble self, Messrs. J. E. Joselin, C. Forbes, H. A. McMillan, T. H. Thompson, W. G. Hawkins, and H. J. Bignold.

—:O:—

NEW ISSUES OF STAMPS.

*. Items for this department will be gratefully received from any Philatelic readers who happen to receive early information of new issues, or of impending changes in the postal arrangements of any country.



BHOAPAL, one of the Indian native States, has produced two more stamps which are quite down to the usual artistic level of the country. Such grotesquely ugly labels I have never seen. I illustrate one of them; the other is a fit companion for it, being

identical in shape and design with the exception of the lettering. Both stamps are of the value of $\frac{1}{4}$ anna.

CHILI favours us with this expansive stamp, the object of which is to some extent shrouded in mystery. That it is a service stamp is certain, but whether it is to be used only by the postal department (as the inscription leads one to suppose), and why it is localised by the insertion of the name "Valparaiso,"—these things I do not quite understand.



SPAIN is contemplating a new set of stamps with an up-to-date portrait of his youthful Majesty, Alfonso XIV. I shall be able to show the design and give full particulars in next week's *Hobbies*.

HINTS TO BEGINNERS.

WATERMARKS.



"SPRAY."

which the paper is thinner or thicker, and therefore more or less transparent, than in the



"EMBLEMS."



"ORB."

There are readers of *Hobbies*, I dare to say, who do not even know properly what a watermark is. Major Evans' definition would be difficult to beat for lucidity. A watermark, then, "is the term applied to any design or pattern in the substance of the paper; these designs or patterns consist of lines in

other parts, and the watermark can therefore usually be seen by holding the paper up against the light."

The illustrations given here show three well-known English watermarks. Others I shall illustrate in future articles, when the importance of studying watermarks will be further explained.

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Should send 1d. Stamp to HARRY HILCKES & Co., Ltd., 64, Cheapside, London, E.C., for "Specimen" copy of **Stamp Collectors' Fortnightly**. Contains articles for beginners, as well as for advanced Collectors.

THE BEST STAMP PAPER GOING!

A MILLION STAMPS FOR £2!—The mystery which prevails in many minds as to what becomes of used postage stamps collected on behalf of charitable and other institutions, is explained by Miss Solomon, Hon. Sec. to the Handsworth Branch of the Girls' Friendly Society. Two or three years ago the Society opened a fund for the erection of a Recreation Hall on a site since secured in Gold's Hill Road. About the same time, the friends of the institution commenced the stupendous task of collecting one million used postage stamps. In a comparatively short space of time half the number were collected, and now the ten hundred thousand have all been gathered in. The fund referred to will then be augmented to the amount of £2! Only half the amount required for the erection of the building has yet been subscribed.



CHAP. VII.—INLAYING.

IN taking up this branch of Fretwork it must be clearly understood that there is no intention of referring to such elaborate examples of Inlay work as may be found on rich Louis XIV. cabinets and other pieces of French furniture. The sole object is to put forward a few practical hints which will enable the average amateur to produce an Inlaid box lid or table top without any great difficulty.

For this reason the professional and trade method of Inlaying with fancy veneers (which are about one thirty-second of an inch thick) will not be dealt with in these chapters. That stage of the work is more advanced, and may be described in a separate article later on. At present any hints will be confined to the more elementary proceedings.

Inlaying may be done with an ordinary Hand Saw, but of course no possessor of a Treadle Machine would forsake it for this purpose, and the suggestion might be made that when the Hand Saw reader aspires to tackle an Inlaid piece of work, the time has come when he should empty his pocket of the small sum which may now procure a good-running machine.

There can only be the one satisfactory method of doing Inlay work, which is to saw the background and the filling-in at one cutting. No one need imagine that he is capable of sawing a piece of Ornament out of one bit of wood, and then cutting the corresponding hole to receive it in another, without shewing some discrepancy. Both woods must be nailed together and sawn at once, in which case there can be no chance of a misfit.

To take a simple illustration—Fig. 31 represents the top of a small Table Stand, the Ornament of which is to be Inlaid. Here then is a clear case where *two* Inlaid tops can be made at one cutting. Select two well-contrasted woods such as Rosewood and Maple, about one-eighth of an inch thick, and nail them together. Observe however that the nails must be driven in *outside* the rim of the Article, otherwise they will leave their mark.

One of the primary lessons to be learned in Inlaying is that as the final work is to be solid, and not fretted, no mistake can be allowed;

and if the Saw unhappily wanders from the straight path it cannot be retraced, but must proceed in its new course as best it may. When the Pattern has been duly transferred, a small hole should be bored with the finest possible Drill at the most convenient starting point, and *close* to the Ornament. Use a delicate Saw Blade, and make sure that it is perfectly vertical. Then trace the line slowly till the whole is cut out. This done, remove the Ornaments and proceed to saw the rim. The two pieces are then free, and it will be found that the Maple Ornament fits exactly into the Rosewood Top, and the Rosewood Ornament into the Maple Top.

As even the finest blade has a certain thickness, and removes its due amount of sawdust, it will be noticed that the pieces fit rather easily; but when the edges are glued all round there will be little chance of slipping, and if the under side of the Article is not intended to be seen a piece of paper firmly glued to it will hold all tight. The Table Top must be thoroughly well sandpapered so as to make the surface perfectly smooth.

All Inlaying is by no means so easy as this, and it is not always advisable to cut two similar Articles at once in the way just described. When twenty or thirty veneers are being sawn the case is different, but for Inlaying in solid woods there is another method to be adopted. It has been stated that the Saw Blade should be kept perfectly straight, but this is only done in such an instance as that which has been given. A much better plan is to bring the Tilting Table into play.

THE TILTING TABLE.

This is used in the following manner:—If—to take the simplest example possible—the form of a Heart is to be Inlaid in the centre of some Article, tilt the iron table of the Machine slightly to the left side, nail the two varieties of wood together, drill a small hole as usual, and cut out in the direction indicated by the arrow. (See Fig. 32.) Separate the woods and it will be found that the upper Heart is just a shade larger than the lower one; thus acting on the



FIG. 31.

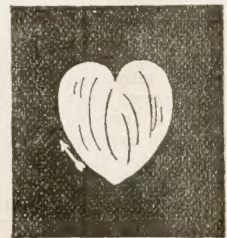
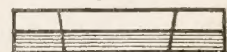


Fig 32



Section

principle of a wedge it will fit very tightly into the space cut out of the under piece of wood. Do not tilt the Table to such a degree that a steam hammer would be required in order to drive the Heart home. The slightest angle will be found sufficient if fine Saw Blades are being used.

If the worker chooses to cut in the opposite direction from that which the arrow suggests, then he must tilt his Table to the *right* hand side, or the natural result would be a small Heart to fit into a large space! From this it will be seen that the direction of cutting must be determined by the side to which the Table leans, and also that the same direction must be pursued throughout. Thus, in a more elaborate piece of work, where several Ornaments are to be inlaid, this must be carefully watched.

Here, however, a difficulty presents itself, which it is hoped will not confuse the reader. In Fig. 33 there is what may be called a *double* Inlay; a Heart is within a Heart, or, in other words, the old Heart is no longer solid, but is equivalent to a rim or border, such for example as is shewn on Fig. 36.



FIG. 33.

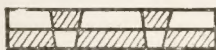


FIG. 34.

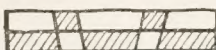


FIG. 35.

Suppose that the former woods are used; a Maple Heart is to be planted in the Rosewood ground. Two insertions of the Saw Blade are required here; two actual Hearts are to be cut out. The inner Heart should be sawn first, but the blade must go in the opposite direction from that taken in cutting the outer line. The simple reason is this—the Maple Heart goes *down* and fits into the Rosewood space, but the inner Rosewood Heart comes *up* and fits into the Maple space. Were both cut in the same direction, there would be no compensation for the loss of a double line of sawdust.

The sections Fig. 34 and 35 (purposely exaggerated in the drawing) shew this. The shaded parts indicate the pieces of Maple and Rosewood which will eventually constitute the finished work. Fig. 34 represents the method as recommended, while Fig. 35 shews the result were both inner and outer Hearts cut in one direction.



FIG. 36.

It is trusted that this explanation may not confuse any reader who is desirous of attempting some Inlay work for the first time. An experiment or two would satisfy him as to what is meant. When the Tilting Table is employed, these matters require attention; and if before cutting, the worker will simply consider for a moment which piece is going to turn out the larger, no error need ever be committed.

"Imitation Inlay" can be done in the following manner:—With a simple table top like Fig. 31, transfer the Pattern to the wood in the usual way, and cut out the Ornament as in ordinary Fretwork. When the piece drops out, stain it to some colour which will form an agreeable contrast to the circular top, and when thoroughly dry glue the edges and fit it back in its former position. Of course it will fit like a glove, and if the staining has been well done it will have all the appearance of genuine Inlay work. The Saw Blades used must be very fine, or too much sawdust will be removed, and thus the Ornament will not fit closely. This method is distinctly an imitation, but it might be recommended to Hand Frame workers who invariably experience some difficulty when trying real Inlaid work.

Next week a few hints will be given as to the treatment of more advanced Inlaying.

(To be continued.)

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CHAP. VII.—SIDE SHOWS.



OWEVER successfully other arrangements may have been carried out, a Bazaar is incomplete without a good series of Side Shows. These in reality give little trouble to prepare, and if energetic and talkative attendants are in

charge they are a constant source of attraction, and phenomenal sums may often be realized by them.

The work, however, must not be only half done. The necessary structures require to be carefully built and decorated, and the attendants must prepare themselves for a hard day's labour if their Shows are to be remunerative.

Naturally it will be quite impossible even to mention all Side Shows which have been, or might be, tried at Bazaars. Our only possible plan is to select a few of the more successful ones and give one or two suggestions as to their arrangement and method of conducting. And in dealing with this branch of the subject we shall not enter into a description of Dramatic Performances, Wax Works, and such exhibitions. These, in Bazaar language, are known as "Entertainments," and will come in for consideration after the

Side Shows have been disposed of.

THE SHOOTING GALLERY.

A somewhat hackneyed, but always popular—and indeed indispensable—Show is the Shooting Gallery, and with a good attendant the cash box may speedily be filled. Half-a-dozen air guns should be hired, and a rail then set up against the wall on which may be hung bottles and glass balls, or any other articles which will readily break with the pellet. The range should not be too short, but as space is usually limited at Bazaars, the question of distance can hardly be considered here.

The remunerative character of a Shooting Gallery is seen to full advantage when a number of youthful enthusiasts club together and organise a Shooting Match. With a small output of energy on the attendant's part this could be arranged every evening, and as young fellows get particularly reckless with their money on such occasions, there is hardly any limit to the financial harvest which might be reaped. If the attendant be favoured with an even and

amiable disposition, and can own to the possession of a little diplomatic skill, he will not fail to empty a few purses.

Whenever possible there should be a solid wall to shoot against. Air guns are perhaps less deadly than firearms, but they may be equally dangerous, and no risk of accidents should ever be run. The writer remembers an occasion where the glass bottles were hung against a thin partition, and when a bullet, penetrating this, lodged in an elderly lady's bonnet. He



could afford some amusement to the reader by giving a verbatim report of the lady's comments on the incident, but as it occurred recently he will show more prudence by resisting the temptation. However, although this particular mishap was a subject for some merriment at the time, it was on the verge of being a serious accident, and certainly the writer will never again fix up his articles on anything less substantial than a brick and plaster wall.



THE BAKER'S OVEN.

This Side Show may not be so successful from a purely money-making point of view as the Shooting Gallery, but it is a very effective one. The front of the Oven is a large wooden framework, about five feet high and four or five feet wide. Brown paper or canvas is stretched on this, and then painted to indicate bricks. A small door, painted to represent iron, must be fixed in the centre, as shewn in the illustration. At the back of this screen is a shelf which should be level with the bottom of the door. The structure is so easily fixed that all the arrangements may be left with those in charge of the Bazaar. A few ordinary loaves must be purchased, the insides taken out, and some suitable little ornaments placed in. The value of these must be regulated by the price which is to be charged for the loaves. All this having been satisfactorily arranged, the success or failure of the Show depends on the attendant. A gentleman, of course, is helpless, and a young and attractive lady must be chosen for the post. A suitable age we need not suggest, but the girl should be pretty; she should be neatly dressed in fancy costume, and have a baker's long wooden peel which she uses to fetch out the loaves. Above all she must be fully conscious of, and have perfect confidence in, her own powers of attraction. Persuasive eloquence and ready wit are essentials, and if a slightly coquettish air be affected, though not exaggerated, she should not take long to fill her money bag. The writer well knows how many sovereigns a man may lose at the Baker's Oven!

THE SNOWBALL.

This is another novelty. A large ball, with lift-off top, should be formed by means of cane

and calico, and covered over entirely with cotton wool. A pretty child, dressed in white, with tufts of wool attached to her dress and hood to carry out the idea of snow, may be left in charge, and if the Show has been got up neatly, she should be able to dispose of a good many of the articles which are kept inside the Snowball. A small boy, dressed up as Father Christmas, would also make a good attendant.

THE OLD WOMAN AND SHOE

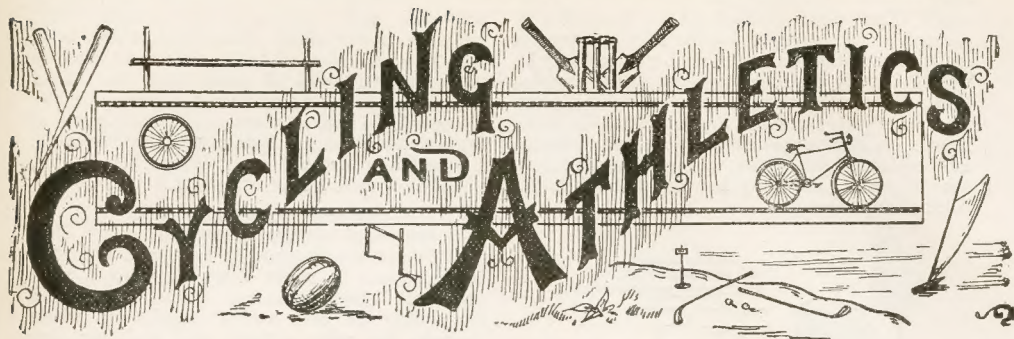
is a somewhat similar attraction. The Shoe itself is not troublesome to form, and a capital imitation can be made of wicker work covered over with black American cloth. A detailed description of one would require a whole chapter, but with a little skill and care any ingenious Bazaar worker should be able to set one up. It is not absolutely necessary to place a hot-tempered *old woman* in the Shoe. This might, indeed, be more in harmony with the sensational legend, but it would hardly tend to increase the sale of the dolls with which the cumbrous Shoe is stocked. A fluent young lady, dressed in some antiquated garb, will make the best attendant. She should be armed with the characteristic switch, although it is urged that this accessory should be kept for ornament and not for use.



This novelty, if well worked, should prove a good paying Show, as it has an irresistible attraction for children, whose importunities will sooner or later cause indulgent parents to make a few purchases.

(To be continued.)

A BAZAAR STORY.—Gifts to Bazaars do not always prove remunerative, as was exemplified a few weeks ago in the case of a small sale promoted on behalf of a struggling church in the North of England. A well known and wealthy baronet was appealed to in the usual way for a contribution, the committee having reasonable grounds for expecting substantial help from him. A hamper duly arrived, and was opened by the committee, whose delight may be imagined on finding it to contain a quantity of apples weighing altogether twelve pounds. The market price is one halfpenny per pound; and as the committee had to pay sevenpence for railway carriage, and utilised a penny stamp in acknowledging the gift, it appears that the funds of the church have not been greatly benefited by this munificent contribution.



NOTES ON SPORT.

THE International Athletic Contest between the London A.C. and the New York A.C., decided a few weeks ago, created a great amount of interest both in this country and in America. The wholesale slaughter of the representatives of old England on that occasion we have previously commented on. It will be remembered that we lost every single event; neither in long or short distance running, in jumping, hurdling, or shot throwing, could the English athletics score a first place. The Americans are naturally very proud, as well they might be, of their complete triumph, and an interesting, and, on the whole, very fair article on the great meeting has appeared in a popular American journal from the pen of W. B. Curtis, President of the American Athletic Union.

We do not wish to rob Mr. Curtis of his honours. His criticism, when confined to what actually took place on the famous roasting day at New York, we have nothing to complain of, but when he launches out into the highly problematical world of "Ifs," and deduces therefrom almost universal American successes, we think he goes too far.

We were fairly and squarely beaten on the day, there is no doubt on that point, and we admit it at once, but it by no means follows that, with a better team and with weather and distances more suitable to our men, complete defeat would still have dogged our footsteps. For instance, in anything like his best form, Bredin would have been a certainty for the quarter mile—and even in the "Half" our English champion must have run the mighty Kilpatrick right up to the tape.

If Bredin had been there, and had shown the same advance on his previous best performance as Horan and other English runners did (thanks to the heat of the day), his time would have come out better than that of the half mile winner.

Mr. Curtis says "Had we (that is the English team) had all our best men, and each man at his best, we could not have won more than three events and probably less." This is very strong. On Mr. Curtis' own showing Fry would have won the long jump in his "street clothes," Monro must have won the three miles, and Bredin the quarter. While for the rest it must be remembered that our men who were at New York suffered very much from lassitude and sleeplessness owing to the great heat, and there is no doubt they were much handicapped by this. The Americans themselves selected Bradley for the 100 yards, and undoubtedly our champion was much put out by the weather previous to the match. The same applies to Shaw. Both these runners were only defeated by a very short distance, quite short enough to justify us in saying that had they been in better form, they were just as likely to have won as not.

In addition to all this it must be remembered that the distances of the various events were all against us. If our usual 10 miles race and two miles steeplechase had been substituted for the 220 yards, we should have gained three points by two certain wins against the loss of the sprint.

We should like to see a return match run in England on a cold wet November day, with the races arranged in our favor instead of as at New York, and we think the result would be very different. We must not omit to thank Mr. Curtis for his concluding graceful

tribute to English gentlemen and sportsmen. If all American critics were like Mr. Curtis, we should hear very little about these international sporting squabbles which are so much to be regretted.

The Rugby match between a team called "London," who opposed the combined strength of Oxford and Cambridge Universities, resulted in a surprising and complete victory for the representatives of learning. "London" was somewhat of a scratch team certainly, but the players were first class in every respect. The University men, however, beat them not only behind the pack, their passing and combined play being excellent, but even at the heavy pushing business, which is just where the opposition team expected to score.

We always expect both Lancashire and Yorkshire to defeat any other single county either of them may happen to meet. If we take Middlesex away the two counties named are by a long way the most populous in the kingdom. This ought to mean the best football, and it generally does. We quite expected Yorkshire to beat Durham, which she has done by one goal and five tries to nil, while Lancashire has added another point to its score by defeating Westmoreland by three goals one try to nothing. Any other result would have surprised us.

Somerset and Gloucester are generally pretty well matched, but the former county has just scored very heavily over poor Gloucester, winning by no less than two goals five tries to one try, the curious part of the match being that the losers are generally credited with having actually the best of the game till the last 15 minutes, when they went all to pieces.

In the cycling world record breaking is about over for the season. Gibbons-Brooks, of London, and Chinn, of Birmingham, have been working their hardest in order that they or their respective firms might have the honour of holding the *mile* through the winter. Each man in turn has capped the efforts of the other. Brooks, however, has been the more fortunate, and his time, 1 min. 53 3/5 sec., will probably stand till next May. This time is the best on record in Europe from the standing start for either amateur or professional.

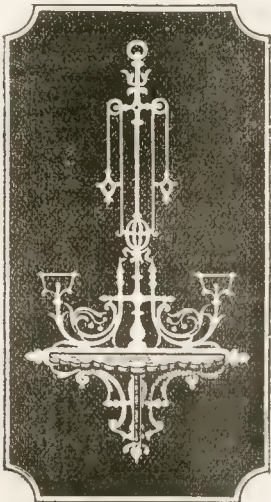
Some of the big cycle companies have done remarkably well during the past year. Chief among these is the Pneumatic Tyre Co., of Dublin, Birmingham, and Coventry, whose profits amount to nearly a quarter-of-a-million sterling, and Humber Company have made money enough to enable them to pay nearly 50 per cent. on their capital.

Such figures as these only tend to give additional proof of the wonderful advances in popularity which cycling has made of late. In spite of these gigantic financial successes, however, we shall make bold to warn investors who are not well up in the ins and outs of the cycle trade to be very careful how they touch any securities in this line of business. More than one cycle company which has been floated, and which has secured the names of responsible looking people as figure heads, has been a swindle from beginning to end. There are, of course, plenty of sound concerns, but it requires some little knowledge to discriminate. The amount of money that has been found to work "inventions" that are simply mechanical fallacies is most extraordinary.



No. 7. "GASALIER" FRETWORK BRACKET.

Brackets are articles which will always be popular with Fretworkers, and new Patterns which can in any way lay claim to originality and novelty are eagerly run upon.



One particular advantage which a Bracket enjoys is in being comparatively free from the chances of accident. When cut out and hung upon some friendly wall it is removed from the ordinary turmoils of domestic life, and thus runs a smaller risk of being knocked about than its less favoured brother who has to take up a dangerous position on some side table.

For this reason a Designer has permission to take greater liberties with a Bracket, and can produce an apparently delicate piece of work without laying himself open to words of censure from the practical critic.

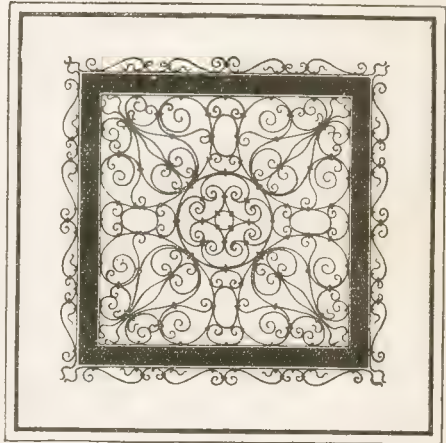
In the above Pattern novelty is combined with grace and simplicity. The article may at first sight appear slim, but when sawn out it will be seen that the grain of the wood has been considered, and that little anxiety need be entertained as to the possibilities of collapse. Solid wood may be used with perfect safety, but it is absolutely necessary that the grain should run vertically. If this is carefully seen to, the long straight lines in the upper part of the Bracket will keep it perfectly strong. Three-ply wood is certainly better adapted for such an article, and any variety might be used. A thickness of three-sixteenths of an inch is recommended, as one quarter inch would appear too heavy, and it might be tempting Providence to risk only an eighth.

The cutting throughout is simple, but care must be taken to keep the Saw blade well on the line, and to turn the corners sharply and with precision. If the insertion notches of the support and shelf are cut so as to fit their corresponding holes exactly, it will save much trouble when the pieces are finally fixed on. If these fit tightly, glue will hold them together firmly, and neither screws nor nails will be required. If they fit rather easily, however, it is safer to drive in two or three fine screw nails from behind, in addition to the free application of hot glue.

All matters relating to the choice of wood, method of finishing—that is, whether the Bracket is to be varnished, polished, stained, or left plain, must be left to the Fretworker's judgment. Almost any wood may be used, and whether an article looks better plain or polished is purely a question of taste.

[Additional copies of this Design may be had, price 3d. each, on application to the Editor of *Hobbies*, Bouverie House, Salisbury Square, London, E.C. The Presentation Supplements will be given during the current week of publication only, and will not be supplied with back numbers of *Hobbies*. All additional copies of the Designs will have the Threepenny Coupons, which are available for three months after the date of issue.]

No. 8. BENT IRON WORK TABLE STAND,
For Cards, etc.



The above sketch is a miniature of the full-sized Pattern for a Bent Iron Work Table Stand, which will be given away with each copy of next week's issue of *Hobbies*.

NOTICE TO CONTRIBUTORS.

The Editor of "*Hobbies*" is always ready to receive Suggestions for Articles for insertion in the paper. Any manuscript sent for his consideration must however be accompanied by a fully addressed and stamped envelope. Unsuitable contributions will be returned without avoidable delay, but it must be distinctly understood that the Editor will not hold himself responsible for the loss of any manuscript.



PHOTOGRAPHY

for Amateurs

NOTES OF THE WEEK.

TWO noted men in Photographic circles have passed away — the veteran journalist, J. Traill Taylor, and Mr. Arthur T. Melhuish. The former gentleman for many years edited and conducted the *British Journal of Photography*. He hailed from the Orkney Islands; for some years he devoted his attention to orange growing in Florida, and then occupied the editorial chair in the office of the *Photographic Times* of New York. This position he relinquished in 1884 or 1885, and took charge of the *British Journal*. Since that date he has been a prominent figure in all Photographic movements, and his loss will be greatly felt by a large circle of friends. Mr. Thos. Bedding, who has acted as associate editor for some time, succeeds him.

Mr. Melhuish was a professional Photographer in Pall Mall, and in 1861 was instrumental in the formation of the Amateur Photographic Association. This association has for its President his Royal Highness the Prince of Wales; it is under the immediate patronage of several members of the Royal Family, and includes in its membership men high in the social scale, and prominent both in the arts and sciences. Mr. Melhuish retained the position of secretary to the day of his death, and was looked up to as an authority upon all Photographic subjects.

Every day brings fresh proofs of the practical usefulness of Photography. One of the latest uses is to Photograph cross sections of logs of wood. From an examination of the Photograph the buyer is able to judge of the age and value quite as well as if a section of the log were shown him.

Very often workers in Photography require a reflector, especially in connection with enlarging. For this, opal glass is often used, but this glass being very fragile breakages are frequent. As a substitute we can recommend enamelled iron; a very pure white is obtainable, and as such a plate is indestructible, and can be exposed to any weather, it makes an efficient and cheap substitute for opal glass, and has the further advantage of requiring no frame or woodwork.

We understand that considerable success has resulted from the introduction of the Pocket Kodak, and that now the proprietors have brought out a special enlarging apparatus for £2 2s. which will enlarge negatives taken with the Pocket Kodak up to whole plate size.

We take the following from an article appearing in a contemporary [on "Cold Weather

Troubles." :—"If the dark room is a cold one, merely employing warm water for mixing the developer is doing less than half what may be done towards creating the most favourable conditions for work. A cold dish should never be used, and above all the plate itself should be fairly warm. A pail of warm water will do the needful for the dish, and the Slides containing the plates may be stood on the mantelpiece over a fire for an hour or so, or they may be gently warmed in any other convenient way before they are taken into the dark room for the development of the plates."

The "Pantoscope" is the latest accessory to the outfit of a Lantern Slide worker. It is a neat, well-made mahogany box, with a sliding body fitted with a lens and ground glass at the back. The Slide is inserted in a slot in front of the ground glass, and by the aid of the sliding body the lens is brought into focus, and the Slide can be examined. The "Pantoscope" is also useful for showing Slides in much the same way as the Stereoscope.

The South London Photographic Society will hold their seventh annual exhibition in March of next year. The open classes include "Pictures which have previously received an award," "Pictures not previously medalled," "Lantern Slides which have previously received an award," "Lantern Slides not previously medalled," "Process Work," "Stereoscopic Slides (set of four)." We shall be very pleased to give readers of *Hobbies* any further particulars they may desire.

In an American exchange we have just seen the description of a Gun-Camera. The camera body is made up of the usual front (in one piece) and back, with detachable ground glass controlled by spring action and a durable rubber bellows. It is mounted on a thin wooden base, on which it slides. To this base is attached a light gun-stock, the wooden strip which takes the place of a barrel being hollowed on the top side to receive a wire which connects at the fore end with the exposure shutter of the lens, and at the other end with the gun-trigger. When the shutter is set the lens is instantly opened and closed by a touch of the trigger. The speed of the shutter is controlled by a spring, and may be varied at will. On the base board of the Gun-Camera are indicated five lines, with numbers marked on them corresponding to the focal lengths of the lens. By moving the camera body on the first mark, indicated by the figures 5 inches, and setting the lens marked 1, with a

touch of the finger the operator finds his instrument focussed for all subjects suited for a lens of five-inch focus. This gun-stock arrangement might be easily adapted to any camera, and we would commend it to the consideration of "The Man with a Hobby."

It is said that the total number of stars visible to the naked eye in the whole heavens is about 6,000. With large telescopes this number becomes 50,000,000; while with a camera it increases to 160,000,000.

Lantern Slides may be made on a cloudy or rainy day quite as good as those turned out in a strong light. It is a mere question of exposure. The tendency with Lantern Slide workers is to use too quick a plate.

Writing upon titles of pictures, the Rev. F. C. Lambert says:—"A group in the street may suggest something. A line of poetry may give you an idea. Sometimes one word may suggest a subject, *e.g.*, the dimpled ocean, restless waves, lazy tide, creeping shadows. A sentence from a book of fiction, a line of verse, may give one quite a fresh and new aspect of things. Here are one or two suggestions from my favourite Longfellow;—

"Sail on ye stately ships."

"Her figure was tall and stately."

"Squares of sunshine on the floor."

"Two fair maidens in a swing."

"The distant mountains that uprear their solid bastions to the skies."

Anything is preferable to the oft-repeated titles one sees in catalogues of Photographic Exhibitions.'

At this season of the year some good prints are often turned out on Bromide paper. Amidol is much approved by many as a developing agent, the whites are very clean, and where a blacker and more brilliant picture is required than can be obtained with ferrous oxalate or metol it is just the thing. The chief points to be remembered are—that during development the prints should be kept well covered, and that after development they must be very thoroughly washed before they are fixed, otherwise brown stains are liable to present themselves and spoil the print. Here are two formulæ, either of which will be found to work well:—

	1	2
Amidol	320 grs.	1 oz.
Sodium Sulphite	8 ozs.	4 ozs.
Dissolved in water and made up to	80 ozs.	80 ozs.

A restrainer will be needed for this. Use 1 oz. of potassium bromide dissolved in water and made up to 80 ozs. This is a weak solution, but will give considerable control.

Complaints are made sometimes as to the injurious effects of chemicals upon the fingers and hands. With care no ill effects are likely to ensue. Those who are nervous may well use India rubber finger stalls; these are cheap and will give perfect protection, and are by no means uncomfortable to work in. Some people can handle cyanide of potassium with impunity; others suffer when using bichromate of potash; and there are many who are unable to touch, or even smell cyanide of potassium without suffering from nausea and headache.

IMPORTANT NOTICE.

The Supply of Back Numbers.

The first and second numbers of *Hobbies* having been long since sold out, while the demand for them shows but little sign of abatement, we have thought it advisable to have these numbers reprinted, so that recent Subscribers may be enabled to complete their volumes.

We hope to have them ready in the course of a few days. Copies may be obtained through any newsagent, price 1d. each, or direct from the publishers, price 1½d. post free. For a few weeks these numbers will be sold at this price with Presentation Designs, complete.

Owing to the largely increasing number of annual subscribers, we have decided to suspend the rule relating to the non-supply of Presentation Supplements with back numbers till the end of the year. Thus, till December 31st, we shall give away the Presentation Designs with all back numbers.

Terms of Subscription

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Three Months (including postage)	1	8
Six Months	3	3
Twelve Months	6	6

All letters relating to subscriptions or back numbers should be addressed to the Publisher of *Hobbies*, Bouverie House, Salisbury Square, London, E.C.

SPECIAL OFFER TO ANNUAL SUBSCRIBERS.

ST. PAUL'S CATHEDRAL.

An illustrated description of a remarkable Design for a Fretwork Model of St. Paul's Cathedral will be found in *Hobbies* No. 1. We present a copy of this elaborate and strikingly original Design to everyone who sends postal orders for 6/6 for a year's subscription to *Hobbies*. The subscriber will thus receive by post every week for one year a copy of *Hobbies* with the usual Weekly Presentation Design, the value of which will never be less than threepence, and as a special present the Design for the model of St. Paul's, the price of which is half-a-crown. Any weekly subscriber who may wish for a copy of the St. Paul's Design can obtain one on sending a postal order for 2/6 to the Editor of *Hobbies*, Bouverie House, Salisbury Square, London, E.C. The offer to annual subscribers necessarily applies only to those sending their subscriptions direct to the Publisher at this office.

TO ADVERTISERS.

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One-Eighth Page	1	1	0
One-Quarter Page	2	2	0
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All Communications to be addressed to the Sole Advertisement Agents,

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Bouverie House, Salisbury Square,
London, E.C.

BENT-IRON-WORK

CHAP. VII.—FLOWER HOLDERS.



flower-pots, etc. They may be made for standing on the floor, for placing on a table, and for suspending from the ceiling or from a wall hook. They may be small or large, light or heavy, simple or elaborate; and can be suited to conservatory, hall, drawing-room, library, and, indeed, anywhere. A score of chapters might be written on Flower Holders alone, but that would be as tedious for the reader as for the writer, and the subject will be disposed of in one article.

Speaking generally, the method of construction as shewn in Fig. 46 is perhaps the most useful. The illustration given is intended as a mere specimen pattern; it is drawn for a hanging Flower Holder, but the system of framing and arrangement might be adapted to many purposes. The skeleton of the article is composed of two U-shaped forms which cross each other at right angles, and four Circle Bands. Fig. 47 gives a rough

ARTICLES which are extensively used, and to which there is no end of variety, are Flower Holders. These can be made to hold tumblers, Venetian and Bohemian glasses, ornamental vases, jars, bowls,

perspective view of the framework outline.

After the Diagram has been drawn to a convenient size, the work may be proceeded with.

Bend the two U forms into shape, and also the couple of C curves which are at the foot of the article. Drill a hole in each strip of Iron at the point where all four cross, and fix firmly with a small bolt and nut. Riveting might be employed, or the pieces might be bound together with wire, but a bolt and nut fixture is by far the most superior in such a case. The nut can be kept a little slack till everything is properly fixed, and can be screwed up tightly when all is right. It is not absolutely necessary to include the two C curves in this joint; but it is very much better, as it gives

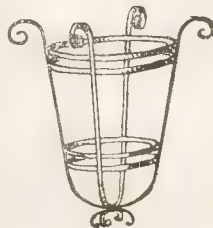


FIG. 47.

more stability to the lower portion of the article. Four Circles must next be made, and holes drilled at four equidistant points—in short, at A, B, C, and D, in Fig. 48.

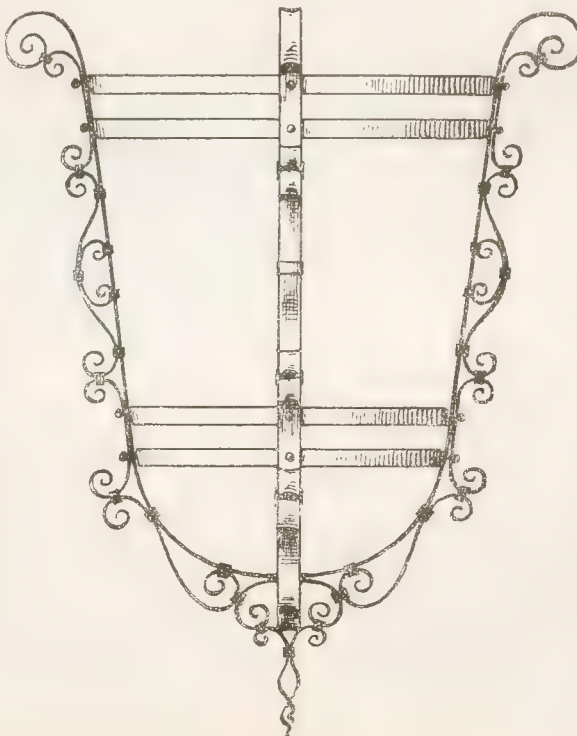


FIG. 46.

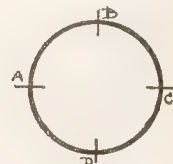


FIG. 48.

Corresponding holes must then be bored in the U forms, and also in the C curves which are on the other side of them. Bolts and nuts are again used here, and when they are well fixed, the Flower Holder should certainly be anything but weak.

It is not a very easy matter getting the Circles to fit in properly, and possibly the best course of procedure will be this:—First drill holes in the U forms, being very particular to ascertain that they are exactly where they should be; also drill holes in the C curves. Then bend the top Circle into form, fix it on, and screw all the nuts tight. The lowest Circle should next be taken in hand, and when it is fitted securely the other two may be measured and made to the correct size.

When all this is done the article is practically finished, as the remaining work is simple; all the other joints are clamped with Collar Bands.

Comparatively little Ornament has been shewn in Fig. 46, for this obvious reason,—Flower Holders must be strong, and where heavy framing is not used, special attention must be paid to the way in which the ordinary Strip Iron is fitted up, otherwise, the article is useless. The plan given will be found suitable for most articles, and if bolts and nuts are employed as shewn, there need be no collapse. The Iron used should be from one-quarter to three-eighths of an inch wide, according to the general size of the article. It is not advisable to use narrow strips.

The Holder may be suspended by stout cord, or by brass wire or chains. Chains are decidedly the most attractive; they are not expensive to buy, and they can be painted black to suit the Iron. Some readers may object to the idea of blackening brass chains; but it is constantly done, and if the rest of the article is entirely of Iron, the paint pot and brush should certainly be brought into play.

OTHER FORMS.

For a Table Vase Holder, such a method as is shewn in Fig. 49 might be adopted. The principle of construction is similar to that which has just been described, but is rather more simple. The four arms are joined by two Circle Bands, and should be fixed by bolts and nuts. In addition to this, it will be seen that there are two C curves underneath the Vase, which cross each other at right angles. (See Fig. 50).

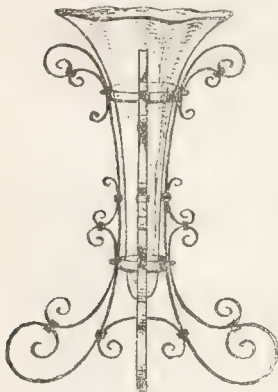


FIG. 49.

These may be fixed by a bolt and nut, or with a rivet; they are then clamped by Collar Bands to the arms, and thus hold the lower portion of the article secure.

Numerous patterns of this description may be made for holding Vases and Glasses of special shapes. The Bent Iron curve naturally follows the line of the Glass to a certain extent.



FIG. 50.

Stands for holding flat dishes could be made somewhat in the style of Fig. 51. There are two Circle Bands, with crossed C curves below.



FIG. 51.

At first some little difficulty will be found in bending such corners as A and B neatly, but practice and care will make this all right.

In many cases, Tripod Stands, as Fig. 52, are preferred to four-legged ones. When these are

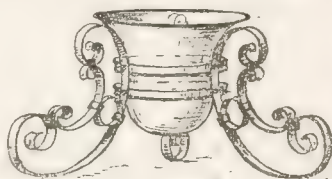


FIG. 52.

wanted, there can be no fixtures by crossing curves, and faith must be entirely centred in the Circle Bands. This, however, is no serious drawback. Circles may be secured very firmly to the arms, and the tripod form makes a most elegant Ornament.

There is not space here to give further illustrations; but these four serve the intended purpose, which is not to supply the reader with Designs, but simply to shew him the general method of construction. Many suitable Patterns may be had from firms which deal in Bent Iron Work materials, and from them, and perhaps from these suggestions, the reader can be able to design a few Stands for Glasses and other Flower Holders which he may have beside him.

It must be said Flower Stands, such as we have just illustrated, can hardly be expected to hold heavy vases or jars. When extra strong articles are wanted the ordinary ribbon metal will be much too light, and Iron or Brass about one-sixteenth of an inch thick must be used. Materials of this sort cannot, of course, be worked with the Bent Iron Pliers, and as its treatment is rather beyond the range of this subject, we cannot describe the method here. Wrought Metal Work is altogether a sturdier hobby than Venetian Ribbon Work, and will require some special chapters devoted to it later on.

(To be continued.)

BENT IRON WORK.

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ELECTRICITY.

A.B.—You will find the quantities in *Hobbies* No. 2, viz.—
 Chromic Acid 3 parts.
 Sulphuric Acid 3 parts.
 Water 17 parts.

The Carbon may be purchased from any Electrician.

V.B. AND E.D.C.—Four chromic acid cells, joined in series, should suit you nicely. Will give full 8 volts, that is, 2 volts per cell. Procure ordinary jar form in wood case, and provided with lifting arrangement for the plates. This is a wet battery, and infinitely superior for your purpose to any makes of dry cell, which lose more in efficiency than they ever gain in other ways. Raise the plates when not in use.

T. E. GEE.—Leclanche batteries are mostly used for bell work. Consist of outer glass cell containing zinc rod, solution of sal ammoniac in water, and a porous clay pot in which is a carbon plate tightly packed in with alternate layers of granulated manganese dioxide and broken carbon. With ordinary work, a charged porous pot will last about two years, but solution in outer vessel requires occasional renewal. Put rather more sal ammoniac in the outer cell than the water will dissolve to keep it highly saturated. Use two or three cells joined in series. Would scarcely pay you to make, as they can be bought very cheaply.

PHOTOGRAPHY AND LANTERNS.

E. CHAPLIN.—Particulars of "Stanley Show" have been sent you.

A READER OF HOBBIES.—Send to Messrs. F. Butcher and Sons, Blackheath, Kent, for their Catalogue.

L.M.—If $\frac{1}{8}$ requires an exposure of 1 sec., $\frac{1}{32}$ will need an exposure of 16 secs. This will give you the general rule.

E. ARTHUR SMITH.—We fully intend to have a comprehensive series of illustrated articles on "How to Photograph," but as this is more of a pastime for the summer months, and as our space is meanwhile taken up with indoor hobbies, we cannot begin the series till spring.

FRETWORK, CARVING, &c.

C. WHITFIELD.—Use French Polish for Mahogany.

F. J. HUISE.—The value of your Midget Photo Frame depends entirely on the excellence of the work. We can hardly quote a figure.

SPARKE.—Try *Cabinet Worker's Handybook*, by P. M. Hasluck, price one shilling, published by Crosby, Lockwood & Son, Ludgate Hill, London, E.C.

D. D. BENNETT.—We do not advise you to alter the Design of the Midget Photo Frame. We have cut out several, and find the 1-16th inch wood quite strong enough.

J. H. MORTON.—The best Fretworking Attachment to fix to a Treadle Sewing Machine is that which is supplied for the "Companion" Lathe and Fretsaw. It will cost you 8s.

A SUBSCRIBER.—It is really impossible to say what your Fretwork Model of the Tower Bridge is worth without having seen it. If well cut out and carefully finished, it might easily sell for sixty or seventy shillings.

A WELL WISHER.—(1) The Saw Blade you enclose will do, but if anything it is on the fine side. (2) Canary is a good cheap wood for Fretwork. It is soft and free from knots; and in colour it is a pale yellow, and is often nicely streaked.

ZANONI.—(1) The Varnish will not get frothy if you work slowly and smoothly. (2) Wash your brushes with soap and water, or use a little turpentine if they are hard. (3) Before lacquering Brass, polish it with emery cloth. Use a small file beforehand if the surface is rough.

WOODWORKER.—(1) You will find full instructions for Fret-cutting and Inlaying in *Hobbies*. (2) We shall deal with Wood Carving immediately in fully illustrated articles, but meanwhile we suggest *Hints on Wood Carving*, by E. Rowe, published by H. Batsford, High Holborn, London.

BROKEN BLADE.—(1) A Bradawl is used for making the drill holes larger, and for general work. (2) Leave the edges of your work sharp and square. (3) Certainly a Treadle Machine is easier to work than a Hand Frame, as both hands are free to guide the wood. Try a "Roger" Machine; it is the best cheap one which you can purchase.

STAMPS.

BEGINNER (Canning Town).—Of no value at all to a postage stamp collector.

A.H. (Hawick).—The Mulready envelope is worth from 5/- to 10/- according to condition.

F.H. (London).—Your British Guiana is not the very rare "one cent." of 1856. The value of yours depends upon the colour; if black it is worth only a few pence, if rose it would fetch considerably more.

J.C. (Coldham).—On a rough estimate your English stamps are worth about $\frac{1}{6}$ the five; but it is impossible to fix a price without seeing the stamps, so much depends upon condition, &c.

ANGUS.—(1) We fear that your old twopenny and three-half penny English Stamps are too common to be of much value. (2) We have your last letter, and may say that Crystoleum Painting is down on our (already) long list of hobbies.

"H.R." (Keighley) should send $\frac{3}{6}$ to Stanley Gibbons, Ltd., 391, Strand, London, for their complete catalogue of foreign stamps. A cheaper one, "Senf's Catalogue," is supplied at $\frac{2}{3}$ post free by Hilckes & Co., 64, Cheapside, London; but this, unfortunately, is printed in German.

W.H.W. (Cambridge) wants to know "how to start a collection." It is a large question. For an absolute beginner the best course is to go in for a few cheap packets. But it is necessary to be cautious, as so much rubbish is palmed off by unscrupulous persons upon unwary youngsters. If "W.H.W." will send a stamped addressed envelope, and at the same time tell us just how much he can afford to spend on stamps per week or month, we will try to help him as to the best way of investing his money.

LEATHER WORK.

A. MOFFAT.—We expect to have some articles on Embossed Leather Work before long. Autograph Collecting is on our list, but we can hardly say when the subject will be taken up.

PRIZE Competitions

It is our intention that all Competitions which will be announced from time to time in this column shall be decided by the skill or ingenuity of the Competitors, and not be in any way dependent on chance.

BAZAARS,—RESULT.

For the best suggestions for a Bazaar Side Show, the Prizes have been awarded as follows:—

First Prize, Ten Shillings, to H. J. Hoare, 29, Salamanca Road, Llanelly, S. Wales.

Second Prize, Five Shillings, to G. F. Prince, 15, Moorfields, Liverpool.

Honourable mention to Charles H. Green, Norton Villa, Shrewsbury Road, London, N.W.

Particulars of this competition will be given in next week's issue.

INDOOR HOBBIES.

Two Prizes of Ten Shillings and Five Shillings are offered for the best suggestions for a New Indoor Hobby. Paragraphs must not exceed 200 words in length, and in deciding this competition the novelty and practical character of the suggestions will be chiefly taken into account. Communications, marked "Indoor Hobby," must reach us not later than December 14th.

FRETWORK DESIGNS.

Two Prizes of Ten Shillings and Five Shillings will be given for the best outline sketch of a Fretwork Card Receiver. Size, style, and treatment are left entirely to the Competitor, but the artistic and original nature of the Design will have considerable weight with the adjudicators. Sketches will be returned if a fully stamped and addressed envelope is enclosed. Parcels, to be marked "Design," should reach us on or before December 21st.

PHOTOGRAPHY.

We will give every month a prize of Ten Shillings for the best Photograph, not to exceed 7½-in. by 5-in., and Five Shillings for the second best. The choice of subject is left entirely to the Competitor. Photographs cannot be returned, and we reserve the right to reproduce any of them in *Hobbies*, if thought desirable. Photographs for Competition will be received up to the last day of each month, and those for the first Competition must be sent to our office to-day, (November 30th,) marked "Photo."

LANTERN SLIDES.

For the best Pen and Ink Sketch of a set of three original humorous Magic Lantern Slides we will give Ten Shillings, Five Shillings being awarded to the second best. The subjects are left entirely to Competitors. Sketches should be full size, and should be drawn in Pen and Ink only. The Prize Sketches, if of sufficient merit, will be reproduced in *Hobbies*. Mark "Slides," and send in by December 7th.

NOTICE TO COMPETITORS.

All Articles, Sketches, etc., for Competition should be addressed to the Editor of *Hobbies*, Bouverie House, Salisbury Square, London, E.C. The name and full address of Competitor must in every case be sent.

NOTE:—No correspondence can be entered into with Competitors, and all awards made will be final.

Lantern Slide Hints.

SUCCESS IN LANTERN SLIDES.

The first necessities for success, says Mr. H. E. Davis, are great patience, care, and exceptional cleanliness. In exhibiting a Slide on the screen we are placing it under a powerful microscope, and any technical defects, however minute, will be much exaggerated. This applies not only to defects on the film, but to roughness or displacement of mounts, bubble marks, scratches, finger marks, or other irregularities. The making of a Slide approaching perfection is a thing not to be done with a light heart.

TONING LANTERN SLIDES.

An authority upon Lantern Slide making, Mr. A. R. Dresser, in his useful little book upon Lantern Slides, says:—"In order to obtain various tones the following methods may be adopted after intensification or bleaching:—

(1.) *Brown Tone*.—After bleaching well wash the Slide and place in the usual 20 per cent. liq. po. bath. The result will be a brown tone, more or less rich according to the original exposure. The longer the exposure the redder the tone.

(2.) *Warm Black*.—Immerse the Slide in a saturated solution of sulphite of soda. A few drops of Ammonia added to the sulphite will yield a purple-black tone.

(3.) *Reddish Brown*.—Immerse in a saturated solution of washing soda. Other tones may be obtained by mixing Nos. 2 and 3 in varying proportions.

METOL FOR LANTERN SLIDES.

In a paper read by Mr. J. H. Baldock, F.C.S., on "Lantern Slides by Reduction," before the members of the Croydon Microscopical Society, he gave the following formula for Metol as a Lantern Slide developer:—

A.			
Metol	...	100	grs.
Sodium Sulphite	...	2	ozs.
Distilled Water	...	to 20	ozs.

B.			
Potassium Carbonate	...	¾	oz.
Sodium Carbonate (crystals)	...	1	oz.
Potassium Bromide	...	40	grs.
Distilled Water	...	to 20	ozs.

Dilute with water for less density, and add bromide of Potassium in case of over-exposure.

TEACHING WITH THE LANTERN.

Mr. C. H. Bothamley, F.I.C., F.C.S., the Director of Technical Instruction for the county of Somerset, has for many years been an enthusiast in the matter of the Lantern as an aid to teaching. When at the Yorkshire College, Leeds, he did much to advance the use of the Lantern, and he has, we understand, prepared, at great trouble and expense, a series of Slides illustrating the "Commercial Geography of the British Possessions." These Slides will not only teach the rising generation to know more of their native land, but the exhibition of them will pass away many an hour with relief to both master and pupil.



N our last chapter we had secured for the jet an efficient supply of both oxygen and hydrogen (coal gas), and were ready to start our show. The remarks that we made with reference to the Oil Lantern will apply generally so far as the management of Lantern, and the insertion of Slides, etc., are concerned, but we must say a few words as to the supply of gases and the keeping up of an equally illuminative disc.

With a Limelight Lantern and a blow-through jet a disc 10 ft., or even 12 ft., may be safely given; we are not advocates of large discs, but when showing in large halls and before a numerous audience they are almost imperative. The absurdity of the large disc becomes very apparent when projecting pictures that have been made from negatives taken with a hand Camera or with a wide-angle lens, the objects in the foreground being immensely out of proportion when compared with those in the distance, or even mid-distance. Take as an example a straw yard at a farm. Here we have perhaps in the foreground ducks, geese, or poultry, and in the distant side of the yard one or two cattle; when shewn upon the screen the "feathered fowl" will appear much larger than the cattle. Or another very bad case is to be found in the pictures of coloured animals, frequently lent out on hire, and shewn by teachers and others as object lessons for the study of Natural History. We remember distinctly having such a set through our hands, and finding that the beautiful little squirrel occupied the same "field" on the Slide as a hippopotamus; the result was extremely ludicrous. The disc in this particular instance was somewhere about 15 ft. in diameter, and the squirrel filled the whole space. Truly one might say "there were giants in those days."

This has been an unintentional digression, but will, we hope, be of service, and induce our Lanternists to look to their Slides and avoid grotesqueness.

To return to the projection of the disc,—and to this end we will start with the jet. The regulation of the supply of the two gases must be a matter of experiment with the operator, who will soon learn how to obtain the best illumination of the disc; never turn a tap quickly or with a jerk, keep the oxygen well under control and when once a good light is obtained let your taps

alone. The maintenance of a good light is due chiefly to proper attention in the turning of the Lime.

The jet is now burning well and without hissing. The operator should see that the light is central with the condenser. The tray on which the jet works, which we have already described, should now be drawn away from the condenser for a space of about 4 inches, and the jet raised or lowered upon the pin attached to the tray until the disc, which will now appear as a blur upon the screen, is fairly central. This having been done the thumb screw on the jet must be tightened and secured to the pin of the tray.

The jet may now be pressed forward to the condenser, and the disc on the screen will soon show equal illumination and a sharp clean edge. We are now in a position to get the objective of the Lantern into focus. The first operation is to place a Slide in the carrier and bring it into approximate focus by drawing in and out the "draw tube,"—the tube or front to which the lens is attached,—and which works telescopically in the tube projecting from the front of the Lantern; as soon as a fairly sharp picture has been obtained, "sharpen up" by means of the focussing screw on the objective or lens.

This having been done it will be well to remember that no attention need, during the evening, be paid to—first, the draw tube of the Lantern; second, that the position of the tray and jet need not be altered; third, that on no account is the Lantern or Lantern stand to be moved, and fourth, that the India rubber tube connections require no alteration. The operator will need to give attention—first, to the supply of oxygen, (during the evening he may need to turn the valve on the cylinder, but the regulation of supply to the jet should be the tap that is on it); second, from some cause the house gas may fail in pressure, and that will then require attention; third, the Lime will need careful watching and so soon as the yellowness, spoken of in the last chapter, shows itself on the disc, "turn the Lime;" fourth, take care to have another Lime ready for use, which should be kept inside the Lantern and have been perfectly dried in order to be quite ready; fifth, on no account let any man "who knows all about it don'tcher know" touch the Lantern; and sixth, never be in a hurry, don't flurry, but take time, and, above all things, keep your temper.

We will now say a few words about the manipulation of a Biunial Lantern. With this Lantern, —although not now nearly so often used—those delightful pictures which have pleased us all—Dissolving Views—are produced, and what are called “Effects”—pictures in which rain, snow, lightning, shipwrecks, illuminations, fires, &c., are produced. A Biunial Lantern will cost from £6 6s. to £15 15s. The two Lanterns are connected with what is called a dissolver. The tap is so arranged that when the lever is turned to the left hand one Lantern receives a supply of gas, and when to the right the other, and a supply can also be given for supplying both at the same time. The arrangement is called a “cut off.” Both jets are kept alight by means of a supply given through a bye-pass. The *Modus Operandi* of lighting up is identical with the single Lantern, and if the same instructions are followed out, all will go well.

It is customary with Biunial Lanterns to use the mixed jet, in which the two compressed gases—oxygen and hydrogen—are used; the inequality of house gas, and the unevenness of pressure are objections, and although not actually dangerous, militate against success, and as a consequence the using of house gas in the mixed jet is to court failure.

In the mixed jet the oxygen and hydrogen pass into a mixing chamber before reaching the point of ignition. The jet, or flame, issues in a very fine stream, and from one orifice, instead of from two, as in the blow through which has been fully explained. Even more attention has to be paid to the Limes, as the flame impinging upon them is much more intense and under higher pressure. This fine jet of flame is likely to “pit” the Lime, and unless it be kept turned the Lime may “fly,” and, in addition to putting out the light, may crack or chip the condenser.

In the Biunial, the two Lanterns are divided by a metal floor, and the jets are each fitted, as in the single Lantern, on metal trays. The stages of fronts of the Lantern differ somewhat from the front of the single Lantern and are hinged, the lower on the top side and the upper at the bottom, so as to admit of the fronts being raised and depressed. This is necessary in order that the discs on the screen may be coincident. The

movements are controlled by screws with milled heads. The centreing of jets in a Biunial is identical with that of the single Lantern; in fact, with the exception of working the dissolver and arranging the supply of gases, no difficulties will be met with.

We should advise anyone who intends to make a practise of using a Biunial Lantern to have the working thoroughly explained to him by a practical worker, and, if possible, to accompany him when giving a Lantern demonstration.

The other Lantern, now very rarely used, is the Triunial or Triple Lantern, and as it will not likely be required by readers of *Hobbies* we may be excused from giving a description, but shall be very pleased to give any particulars as to its construction and manipulation, and to answer any questions that may be sent us.

The next chapter shall be devoted to a representative evening, the Slides to use, how to use them, with a few hints on what to say about them. In addition we shall give a few interesting experiments that may be made with a glass “tank.”

(To be continued.)

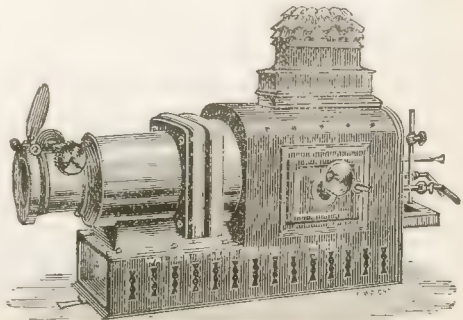
THE AUTOMOBILE CLUB, which has long been talked of in Paris, was founded a few days ago. Its object is to encourage automobile locomotion by every possible means. The Club house will be a place of meeting where the members will find a very complete scientific library and where lectures will be given. The Club will organise races and will award substantial prizes.

THE CELEBRATED COLLECTION OF COINS which was formed by the late Mr. Hyman Montagu, and which is one of the largest and finest in the world, will (says *Truth*) be sold off in the course of the next six months in seven different divisions. Mr. Montagu had magnificent cabinets of Greek and Roman coins, about 2,500 in number, including all the rarest and finest specimens. His collection of English coins and medals is the most complete in existence. There are about 3,000 English historical medals, including all periods, and nearly the whole of his specimens are in the best state of preservation.

MAGIC LANTERNS AND SLIDES.

The Best and Cheapest House in the World for Lanterns and Slides is WALTER TYLER'S. Thousands of Slides on Sale or Hire at lowest prices. Many Hundreds of Lanterns second-hand; great bargains. The Helioscopic Lantern, the best made. Second-hand Lists and Small Catalogues post free. Large Catalogue, 12 stamps.

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NOTE.—Trade Advertisements can only be inserted in this page at the rate of one shilling per line.

Albums.— $\frac{1}{2}$ plate slip-in photo album. Will hold 95 photos, 4/6. Approval. Walker, Maroomla, Tonbridge

Bamboo Work.—Canes and all requisites. Instruction Book and Design Sheet 6d. Brown, Wormald's Yard, Leeds.

Collection of 200 rare English Coins, all reigns, list sent.—C. Cook, 32, Woodbine Cottage, Wolsley Street, Birmingham. B. 2.

Collie.—For sale, a grand champion-bred Collie Bitch Pup, sable and white; should make a winner; age six months. If sold at once the low sum of two guineas will be accepted. Particulars, pedigree, etc., from Chas. Smith, Milton House, East Dereham. C. 1.

Electric Cycle Lamp and Battery in thorough working order. Cost 25/-; accept 18/6.—G. COPPER, 59, High Street, Old Brompton, Chatham.

Electrical Hobbies.—Write for New Enlarged List will just suit you; prices low; best quality.—Electric, Lord Street, Openshaw, Manchester. C. 2.

For Sale.—Cushioned Tyred Safety, balls throughout, also volumes 16 and 17 Boys' Own Paper, unbound, good condition, and set of 12 Chip Carving Tools nearly new. £4 12 6 lot, cheap.—Day, 81, Haviland Road, Boscombe, Hants.

Fretwoods.— $\frac{1}{2}$ inch Canary wood, 3d. per ft., Walnut, Mahogany, Oak, Cedar, 4d. per ft.—T. Carter, Lichfield. D. 3.

Fretworkers.—Special offer this week. Eiffel Tower, Tower Bridge, and Ferris Wheel Patterns, 9d. each, usual price, 1/- Fretwood, 2d. square ft. Bent Iron, 6d. per lb. Lists 1d.—Lunds, 70, Manningham Lane, Bradford. B. 2.

Fretsaw (Roger) wanted, exchange Rabbits or Opera Glasses.—Tompkinson, Wellington Street, Stockton.

Fret Machine wanted; will exchange six vols. *Boys' Own Paper*, one damaged, and one *Leisure Hour*. Or what offers singly? W. J. Brindle, Shop Fold, Brinscall, Chorley, Lancs.

How to Become a Lightning Cartoonist, 7d.—Hotham, 24, West Parade, Huddersfield.

How to Make an Electric Night Light that will work well for years without attention, post free, 6 stamps; also how to attach an electric alarm to clock, 6 stamps.—James, 11, Stanbury Road, Peckham, S.E.

High Class Tools.—For New Illustrated Price List, send 3d. to Osborn Brothers, Tool Merchants, 48, Fratton Street, Portsmouth. M. 2.

Keep your Accounts and Letters Straight by using my Bookmaking Machine, thousands in use, a child can work it. Indexed Case and Machine complete for 5/6, carriage paid. P.O. (crossed) to George Edwards, 75, George Street, Manchester.

Ladies' Good Sealskin Muff Bag 12/6, also Good Toned Violin 10/6—Sanderson, 410, High Street, Gateshead.

Matthew Henry's Commentary on the Bible. Complete, 95 parts, illustrated, splendid condition. Cost £2 18 0, accept 30/- cash.

The Studio.—First 3 volumes illustrated, (parts 2 and 3 missing,) for sale. Several parts now out of print. What offers?

Lloyd's Encyclopedic Dictionary.—Parts 1 to 11, (part 2 missing,) for sale, 2/6. E. H., 82, Southwark Park Road, London, S.E.

Stamps.—Old collection or loose stamps wanted. Price no object.—Captain Vigors, Bideford. C. 2.

Stamps.—8d., 70 different, Mexico (coach), Perak (tiger), Colombia, Peru, 5 Brazil, Persia (lion). H., 379, York Road, Wandsworth. C. 3.

Several Fretsaws and Lathes, second hand, to be sold cheap. Send for Monthly Register containing details of Engineers' Tools, &c.—Britannia Co., Colchester, and 100, Houndsditch, London. State your precise requirements. B. 2.

Stamps.—For cheapest approval sheets write Northern Stamp Co., Great Horton, Bradford. Agents wanted. D. 2.

Stamps.—Natal Provisional, Half on 1d., very scarce; Gwallior, Nabha, Jhind, Tobago, Timor, Siam, Shanghai, Perak, Faridkot, Gibraltar, Saint Lucia, Cyprus, Ecuador, Alwur; thirty-five genuine varieties, 1s. 1d.—Smith, Arthur Road, Kingston, Surrey.

200 English Birds' Eggs for sale; offers, or exchange good Fret Machine.—Slinger, 18, Albert St., Nelson.

MAKE YOUR OWN FENDERS.

Three different Fender Top Patterns, One Ashpan Pattern, 1/6 free, or 6d. each. Kettle Stand and Iron Stand Pattern given to every purchaser.—TULLOCH, Dealer in Fretwork Materials, Millfield, Sunderland.



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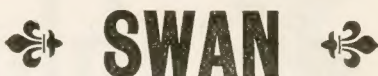
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N.B.—Larger Outfits can be supplied at 2/6, 3/6, and 6/6 each.

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Strawberry Plants in great variety; 100 plants in four best sorts (J. G.'s Selection) free for 5/-. Cash with Order.

Carnations, splendid border varieties, robust healthy plants, 6 varieties free for 4/-; 12 varieties for 7/6, Cash with Order.

Alpine Auriculas, most charming varieties, the finest strains in England, scarcely two in a hundred alike. Grand year old plants 2/6 per dozen, 16/- per 100. Smaller Plants, same strain, 1/3 per dozen, 8/- per 100, free for Cash with Order.

All who make Gardening a Hobby should see my Great Catalogue, which is up to date and full of all the best novelties in Seeds and Plants. Price 1/- (which may be deducted from first order over 10/-).

JOHN GREEN, F.R.H.S.,**NORFOLK NURSERIES,****DEREHAM.****HOW MR. HALL CAINE
WROTE THE "MANXMAN."**

"Yes, if the fact is of any consequence, you are very welcome to say that I wrote the 'MANXMAN' with the Swan Fountain Pen. It has become quite indispensable to me. I can use it with ease and certainty anywhere, and at any time, even in the dark, in bed, and on horseback.

HALL CAINE."

We only require your steel pen and handwriting to select a suitable pen.

Complete Illustrated Catalogue sent post free on application.

Mabie, Todd, & Bard,**93, CHEAPSIDE, E.C.,****or 95a, REGENT ST., W.**

REDUCED FAC-SIMILE.

OTHER TESTIMONIALS.

From Mr. RICHARD PENDEREL.—Five hundred thousand words have been written in fifteen months with one "Swan" pen, and without the slightest evidence of wear in the pen.

From THE ARCHBISHOP of YORK, Coatham, Redcar.—Though I have only had your pens in use for a month, I must write a line to say how intensely grateful I am to you for bringing them to my notice.—Yours very gratefully,

W. D. DALRYMPLE MACLAGAN.

Hobbies that Pay.

THE PIG AS A SOURCE OF PROFIT.

MORE money can be made by breeding and rearing Pigs than by following any of the profitable hobbies which have already been dealt with in this section of the paper. Dog fanciers and clever and expert Polo-pony breeders may now and then make surprisingly large sums of money, but for regular and steady money-making there is nothing to equal the keeping of Pigs. The Pig is, of course, a valuable auxiliary to the dairy, and in this connection the repusal of a recent article on "The Amateur Dairyman" may be recommended. Skim milk is almost a necessity in Pig rearing, for without it the economic rearing of young Pigs and cheap Pig-fattening are scarcely practicable. Each of these points will be considered presently. This article is specially intended for the Amateur Pig Keeper, and a few encouraging words may be quoted for his benefit direct from a gentleman, now the most influential Pig man in England, but who was once himself an amateur. Speaking as the holder of a stock of 650 pedigree Pigs, this gentleman says:—"Tell Pig owners that Pigs will be a good bit dearer in the spring, as every one almost is selling off the Sows for fattening." This being the case, it is probable that those who have litters coming in next February will find their stock of more than ordinary value. With regard to pedigree Pigs it may be mentioned that the three white Yorkshire breeds appear to be carrying all before them. The quality of the "Large" and the "Middle" White Yorkshires has long been recognised by the big bacon curers and by the foreign buyers. The latter come to this country for the best of our pedigree stock so that they may be able to supply our markets with bacon and pork of as good quality as that which we produce ourselves.

Store Pigs to-day are worth from 50s. to £3 each at an age of from 16 to 20 weeks. It is comparatively easy to calculate what it will cost to fatten these stores. Meal, when properly fed to Store Pigs, makes them gain weight at the rate of 1 lb. for every 5 lbs. of meal. If skim-milk, household waste, and some cooked vegetable food can be used to the saving of meal, every 4 lbs. of meal purchased will represent 1 lb. of pork. Meal is worth to-day when fairly well bought from £2 5s. to £3 per ton. In

Liverpool, at the present time, the offal of sound wheat ground into meal can be bought at 45s. on rail. Meal at from 2s. 6d. to 3s. per cwt., or about 4½d. per stone, is wonderfully cheap. If a Pig costing 50s. or £3 can be run up to 180 lbs. weight in three months, and is then at 6d. per lb. worth £4s. 10s., there should be a clear profit of £1 to the fattener. If the fattener be also the breeder his profit will be still greater. It therefore amounts to this: that £3 may be turned into £4 four times a year, or a profit equal to 100 per cent. per annum made by keeping a Pig always fattening. Much, of course, depends on the sort of Pig kept. In America, from whence nearly all our coarse bacon comes, the common breed of Pigs is of the type shown in the accompanying illustration.



American Sow and her Young.

There is a trace of the Tamworth as well as of the Berkshire breed in these; but the Sow has just the frame one would expect to meet with in the coarse American Pigs. The coarse ears, and the heavy jaw, the light hind-quarters, the big bulk of cheap meat it carries on the shoulders, and the coarse hair, all denote the same defect—want of quality. The English cross, which is clearly visible, has been obtained by importing Boar Pigs of the above-named breeds and using them as sires. It is not very long ago since much of our home-fed and cured bacon was almost as inferior and as coarse as that obtained from these American Pigs. The last few years have, however, witnessed a great improvement in breeds of Pigs in this country. Even a brief reference to the best

methods of Pig breeding and rearing cannot be made without some consideration of the popular and useful co-operative movements. There are districts where both small and large producers have combined to carry on bacon-curing factories at which all the fat Pigs they can rear and send in are turned into bacon, thus securing an evenly good quality of the same brand that will command a good market. Hitherto the one-Pig men have had to depend on a local buyer and curer who has had them pretty much at his mercy as to price. A case has been known of a man of this class taking all the pork in a local district and making a rare profit for himself out of it. Where small owners are willing to combine, they may do so in several ways—(1) by buying meal in bulk at a cheaper rate; (2) by keeping by subscription pedigree sires of the best and most noted breeds; (3) by curing the bacon in their own factory; and (4) by finding a better and a steadier market than is offered in any local town. Practically, rearing young Pigs is a business or a hobby that may be followed all the year round; but as Pigs thrive best and lay on flesh most rapidly when the weather is mild, the spring and autumn are the best times for Pig fattening. Where there is the convenience of a paddock or field in which Sows and young Pigs can run for exercise, breeding will pay better than fattening; or the two may be carried on together. A Sow will produce two litters within a year, and will suckle them till they have learnt to eat and are strong enough to wean. The best age to mate a young Sow is at eight or nine months. She will bring her family into the world in sixteen weeks time. It will not be well to let her try to rear more than eight of her first family; but after the first she will, if well fed with suitable food, rear as many as she has teats for—each little pig needing a teat to itself, and each one knowing and sticking to its own. Food for a Sow whilst giving milk should be made rather more sloppy with skim milk than it usually is, and the best meal for her is pollard and bran for a few days, and afterwards barley meal and other foods. Her young should be fed by themselves in small troughs, and should be given a little warm milk into which some barley meal has been stirred, gradually increasing the quantity of meal. Only a very little at a time should be allowed them at first, and they should never be surfeited; but as they gradually become independent of the mother's milk they should have a little dry grain daily, till at seven or eight weeks old they may be weaned and penned up by themselves. Pigs should in brief receive their food a little at a time and often, for it must be remembered that the Pig has only a very small stomach, although it possesses such grand digestive organs.

STORE PIGS.

Grass is a most excellent food for Pigs, and in spring, summer, and autumn, if allowed to range in the pastures, Store Pigs will require little else in the way of food. The exercise they thus get will probably spare the necessity of giving them physic for rickets and rheumatism, which they get through lying on cold, damp floors, and being too much penned up. Store Pigs will turn any waste food to a profitable account, and if they can have green tares and roots when grass is scarce they may be kept for many months at almost a nominal cost for food.

The best time in all the year at which to begin Pig keeping is just now, when Store Pigs and young Sows may be bought that have been running on the land during the autumn. The best breed to buy either for fattening or for breeding from is probably one of the two mentioned as "Whites" in the earlier part of this article. A "Middle White" Boar Pig is here shown.



A "Middle White" Yorkshire Boar.

At a year old and when in fairly good condition, but not heavily fat, a Boar of this breed should show all the good points of the one in the picture. The points alluded to are:—Ears—thin, small, and pointing forward and well filled with hair; head—small, wide between the eyes, and quite hollow in the face, with abruptly turned up nose; eyes—lively and full; neck—thick, short and deep; chest—large and deep; back—broad, especially over the rib-quarter, and of even width from shoulder to ham; sides—deep and well filling out down to the under line; hams—broad, full and thick down to the hock; legs of medium length, straight and set well apart; tail—long, and bushy at the tip; bones small, feet short. The colour is white, and the body is well covered with fine hair. It is where the "cuts" are most valuable that the meat should be laid on the most thickly, and the faculty or quality of laying on most meat in the best parts is possessed most prominently by the Pigs of the breed above described. In making Pigs fat the use of plenty of skim milk is almost a necessity. The Irishman who tried to get his Pigs to make streaky bacon, with that object fed them one day and starved them the next, failed most decidedly; but had he fed them on skim milk alone, they would have been nice and streaky. In places where some offal meal can be supplied, and there is plenty of milk, Pigs can be fattened at very little cost. Milk in the daily ration instead of water, will reduce the meal bill by at least one third.

* * * The illustrations of An Amateur's Standard and Roots of a Paradise Stock, which appeared in the article on Apples and Pears in No. 4 of *Hobbies*, were from the Catalogue of Messrs. George Bunyard and Co., The Royal Nurseries, Maidstone. It was purely through inadvertence that they were published without acknowledgement, and we are glad to express our appreciation of the courtesy which Messrs. Bunyard and Co. have shown us.

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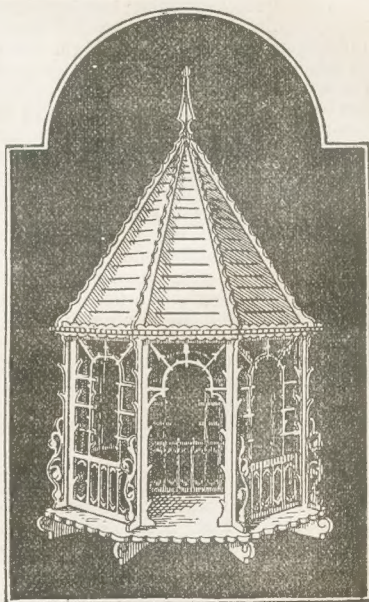
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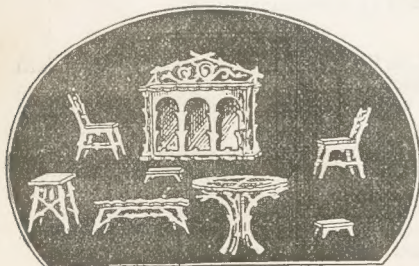
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Sole Advertisement Agents,—JOHN HADDON & Co., Bouverie House, Salisbury Square, London, E.C.